KGS OFR 71-14

Geological Report

Fig. 36

DRILLING TIME & SAMPLE LOG

COMPANY U. S. Atomic Energy Commission
LEASE Test Hole No. 1, Lyons, Kansas
FIELD Radioactive Waste Repository Project
LOCATION Approx. C NE NE NE NW *
SECTION 26 TOWNSHIP 19S RANGE 8W
COUNTY Rice STATE Kansas
CONTRACTOR U.S. Corps of Engineers RIG NO
COMMENCED DRILLING August 31, 1970
COMPLETED DRILLING October 8, 1970
RTD 1300.8 FEET LTD FEET
MUD UP AT 150 FEET MUD TYPE chemical; salt saturated brine below 750', Dresser Magcobar.
~~SAMPLES~~ Cores SAVED FROM 0 FEET TO 1300.8 FEET
DRILLING TIME KEPT FROM FEET TO FEET
~~SAMPLES~~ Cores EXAMINED FROM 0 FEET TO 1300.8 FEET
GEOLOGICAL SUPERVISION FROM 0 FEET TO 1300.8 FEET
GEOLOGISTS Moylan, Shaw, Stansfield, U.S. Corps of Engineers
DRILL STEM TESTING BY U. S. Geological Survey, Hydrology Section
GAS DETECTOR None
* Location is 2590' east of the west line & 250' south of the north line, Sec. 26
Elevation of ground estimated as 1745 from U.S.G.S. preliminary topographic map, Lyons, Kansas, 1 NW, in preparation.

ELEVATIONS:
KB FEET
DF FEET
GL 1745 Est. * FEET
MEASUREMENTS ARE ALL FROM 1745 Ground

CASING
8 5/8" @ 309.5' w/ 125 sacks cement.
Top of casing is .5' above zero point.

ELECTRICAL SURVEYS
Complete suite by Schlumberger and Birdwell

REMARKS Hole cored from grass roots to total depth. Split tube soil sampler 0-72'. Six inch diameter core 72' to Total Depth. Cores on permanent file at State Geological Survey, Lawrence, Kansas. This log prepared by generalizing from detailed well site drilling log made by C of E geologists.

LOG DESIGNED BY JOHN ROGER MC COY, WICHITA KANSAS

LEGEND

Limestone	Oolicastic Limestone	Dolomite	Chert	Shale	Carbonaceous Shale	Salt	Sandstone	Anhydrite
▦	▦	▨	▦	▒	■	▦	☰	▩

SCALE: 5" = 100'

...tomic Energy Commission
...e No. 1, Lyons, Kansas
... NE NW SEC. 26 TWP. 19S RGE. 8W
STATE Kansas
ELEVATION: 1745 Est. Ground

SOURCE OF DATA

...hology log above is compiled directly from on site core descriptions by the ...geologists, John Moylan, J. Craig Shaw, and Robert Stansfield. Their field ... of E log sheets at 5 feet to the inch, have been abridged (with the omission ... such as fractures, contorted bedding, etc.) and plotted at 20 feet to the inch ...rison with the geophysical logs.

FORMATIONS DRILLED

	Interval (feet)	Thickness
	0.0 - 71.0	71.0
...tion	71.0 - 170.7	99.7
...tone	170.7 - 296.7	126.0
... Formation	296.7 - 315.5	18.8
...hale	315.5 - 628.0	312.5
...ormation above salt	628.0 - 815.1	187.1
...nson Salt Member	815.1 - 1084.1	269.0
...ormation below salt	1084.1 - 1251.9	167.8
...tone ...es Herington Ls. Member)	1251.9 - 1289.5	37.6
	1289.5 - 1300.8 TD	11.3+
		1300.8

STRUCTURAL COMPARISON

	AEC Test Hole No. 1 NE NE NE Sec. 26 19S-8W		Western Pet. Co. Stockham No. 1 C NE NE Sec. 34 19S-8W		Carey Salt Co. Shaft, 1890 C SE NW Sec. 34 19S-8W	
1745			1721		1702	
		+1448		+1440		+1430
...96.7 ...15.5			281 295		272 284	
		+1430		+1426		+1418
		+ 930				+ 909
...15.0 ...84.1			? ?		793 1068	
		+ 660				+ 634
		+ 493		+ 490		—
...51.9 ...89.5			1231 1275		— —	
		+ 455		+ 451		—

...No. 1 is 1¼ miles southwest of the AEC Test hole No. 1, and the shaft of ...is an additional ½ mile southwest or 1 3/4 miles distant. The rocks are ...he sixth of one degree slope on the base of the salt section from AEC

CORE RECOVERY

From - To	Footage	Recovery	Loss	% Recovery
0.0 - 71.0	71.0	71.0	0.0	100.0%
71.0 - 318.6	247.6	235.3	12.3	95.0%
318.6 - 705.5	386.9	373.8	13.1	96.5%
705.5 - 815.1	109.6	107.0	2.6	97.6%
815.1 - 1084.1	269.0	269.0	0.0	100.0%
1084.1 - 1300.8	216.7	216.7	0.0	100.0%
	1300.8	1272.8	28.0	97.8%

... 1 stated that it was mandatory to have 100% recovery, or nearly 100% ...lus 50 feet above and 50 feet below. The six inch diameter cores taken ...Corps of Engineers had a 100% recovery of the salt section and the rocks ...with tight shale-salt contacts, the AEC No. 1 therefore completely ... the AEC No. 1 is judged highly

HANDLING OF CORES

...nch diameter cores were washed, handled with a minimum of breakage and ...raphed, wrapped in plastic, sealed, and placed in permanent wooden boxes ...hen delivered intact by the C of E to the State Geological Survey at Lawrence,

STORAGE OF CORES

...' to 1300.8' TD (interval 1130.1') provide a type section for the upper ...ontinental redbed section for central Kansas, a section impossible to obtain ...e cores, together with the cores from 0 to 170.7', will be sliced with an ...permanent repository at Kansas University, and the second half used for ...n-destructive and destructive methods.

GEOPHYSICAL LOGS - SURFACE HOLE

...ored with a Failing 1500 rig, with a rotary table 2.5 feet above ground ...ace hole, temporary casing was in place from 0 to 71 feet. Permanent ...mated as 1745 feet above sea level, based on preliminary U.S.G.S. ...1 NW, in preparation. All logs digitized and recorded on magnetic

Zero Point 2.5' above ground level
(SNP) 318 - 71
(DIL) 318 - 71
...ed (FDC) 318 - 71
(BHC) 318 - 71
(INT) 318 - 50
...al 318 - 54
Not recorded - malfunction
(VDL) 318 - 71
(HRT) 318 - 0

Zero Point 2.5' above ground level
318 - 0

318 - 100
318 - 100
318 - 100

...EOPHYSICAL LOGS - 1300' TD

... 309.5 feet with 125 sax cement the hole was cored to 1300.8 feet ...le 4.0 feet above ground level. The top collar of the 8 5/8" casing ...roviding a semi-permanent reference point (it will be cut off below ...iper log indicates the next casing collar is 33.0 feet deeper).

Zero Point 2.5' above ground level
(GRN) 1300 - 0
(SNP) 1300 - 280
(DIL) 1300 - 318
(MLL) 1300 - 318
(FDC) 1300 - 318
(BHC) 1300 - 318
(INT) 1300 - 318
1300 - 318
1300 - 318
...VDL) 1300 - 40
...HRT) 1300 - 0

Zero Point 4.0 feet above ground level